EXHIBIT 1 TO AMENDMENT FOR SERIAL NO. 10/684,357

(Declaration from Dr.Melvyn
submitted in related case)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: *Bennett*) Art Unit: *2654*
)
Serial No.: *11/030,864*) Examiner: Martin Lerner
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Filed: *1/7/2005*)
)
For: *ADJUSTABLE RESOURCE BASED SPEECH RECOGNITION SYSTEM*)

DECLARATION UNDER 37 C.F.R. 1.132 IN SUPPORT OF RESPONSE TO OFFICE ACTION

INTRODUCTION

1. I submit this declaration in support of the above application. A copy of my CV is attached hereto as Exhibit 1.
2. In brief, my experience includes more than 20 years of experience in analog and digital circuit design, firmware engineering, software algorithms, etc. with a wide variety of firms. I submit that at the time of the time of the effective filing of the present application (November 12, 1999) I would be qualified at least as a person skilled in the art.
3. I have been compensated for my time required to review the file, formulate my opinions, and prepare this declaration. I have no ownership interest in the patent rights involved in this case and my compensation is not dependent upon the results obtained.

REVIEW OF OFFICE ACTION REJECTIONS UNDER 35 USC § 112

4. At the Applicant's request I have reviewed the Office Action of February 3, 2006, in which the claims of the application were rejected under 35 USC § 112 (1) (description requirement). As I understand this area of the law, compliance with the written description requirement is an issue of fact. Vas Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563 (Fed. Cir. 1991). The written description requirement only requires that "the disclosure of the application relied upon reasonably conveys to the artisan that the inventor had possession at that time of later claimed subject matter." See Lampi Corp. v. American Power Products, Inc. 228 F.3d 1365

(Fed. Cir. 2000).

5. In my opinion the written description requirement is met here since I submit, based on the analysis below, that a person skilled in the art would objectively understand and be reasonably apprised factually that the inventor had possession of the subject matter which is in contention.

6. U.S. Patent Application 11/030,864 ("the '864 Application") was filed on June 7, 2005, and claims priority to parent application serial no. 09/439,145 filed November 12, 1999 (now U.S. patent 6,633,846). In an Office Action mailed February 3, 2006, ("the Office Action") the Examiner indicated that three limitations recited in the claims "contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention." [Office Action at 2] These three limitations are:

    i. "evaluating an amount of computing resources available at the network server system for performing speech recognition operations on speech related data" ; and
    ii. "evaluating an amount of computing resources available at a client device for performing query recognition operations on speech utterance data received from a user" ; and
    iii. "wherein said first set of speech recognition operations are specified during an initialization period and are configurable on a connection-by-connection basis with each client"

7. For the reasons explained in detail below, I respectfully disagree with this conclusion. I believe that one skilled in the art would clearly understand the specification to include each of the three limitations shown above.

BACKGROUND

8. The '864 application discloses a natural language query system (NLQS) that is distributed across a client-side system and a server-side system. See page 16, lines 13-14. This means that some speech processing takes place on the client-side system and further speech processing takes place on the server-side system. The '864 Application describes the client side processing as "partial processing." See page 17, lines 4-10, page 24, lines 28-30, and page 25, lines 21-27.

9. The distribution of processing between client and server is a key element of a preferred embodiment of the invention disclosed in the '864 Application. This approach is referred to as "partitioned," and as taking place in different "phases." See page 25, line 21-23, and page 35, line 31 to page 36, line 3. In a preferred embodiment, the first phase of processing includes computation of MFCC coefficients and the second phase of processing includes computation of MFCC delta and acceleration parameters in addition to other recognition related functions.[1]

10. In addition to disclosing in detail the separation of speech processing into two sets of operations in the case of MFCCs, the '864 Application is clear that the precise set of operations that are performed by the client-side system and the precise set of operations that are performed by the server-side system may vary based on a number of different criteria. See for example page 35, lines 6 to page 36, line 11.

11. The subject matter of the three claim limitations that are the subject of the Office Action relate specifically to how the processing is partitioned into two sets and additionally when the processing is partitioned into two sets.

Evaluating Computing Resources

12. The first two claim limitations that are the subject of the Office Action recite the evaluation of computing resources at: (i) the server; and (ii) at the client. This relates to how the partitioning of processing operations between client and server takes place. The '864 Application is clear that one option for partitioning the processing is based on an evaluation of computing resources of the client and the server.

13. In the Office Action the Examiner indicates that the "only significant disclosure in any way related to these claimed features is found on Page 35, Lines 6 to 20." While this cited passage does in fact relate directly to the question of how and when processing is partitioned between client and server, there are additional passages that also relate explicitly to the claim elements at issue, and inform one skilled in the art on this aspect of the claim. In particular, page 35, lines 21 through page 36, line 11 explicitly discusses the concept of dividing processing into phases based on availability of resources and overall performance goals.

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[1] Other speech recognition functions which could be allocated/specified, for example, are associated with using dictionaries, acoustic models, grammars, HMM models, etc., to map the feature vectors onto a word or string of words. *See, e.g.*, Exhibit 3 attached hereto, which is an excerpt from "Voice User Interface Design," 2004 by Cohen et al.

Additionally, page 42, lines 3-17 discusses various options for where operations take place based on computational resources.

14. The '864 Application states that the configuration "can be determined automatically … using some type of calibration routine to measure resources." [page 35, lines 10-12] The reference to a measurement of resources can mean nothing but an evaluation of resources available.

15. In addition, at the time of the filing of the invention, the use of performance monitoring routines – particularly for servers – was well known in the context of measuring the use of resources by applications. For example, a "Performance Monitor" utility offered by Microsoft - apparently as early as 1997 for their Windows NT operating system - allowed system operators to track variations in the use of system resources, to set alerts on the use of specific resources, etc. A copy of printouts from various websites is attached as Exhibit 2 to give further information on the general features and operation of such utilities.

16. The '864 Application specifically mentions the use of Microsoft agents, routines, etc. in several areas in connection with the preferred embodiments. So again I believe it would have been apparent to one skilled in the art at this time that the aforementioned Performance Monitor utility for Windows NT was an example of the type of routine suitable for use with the invention.

17. It should be noted here that a particular choice of wording on page 35 may be confusing to the Examiner but can be put into context through careful reading of the entire paragraph in context. Specifically, lines 6-7 refer to "MFCC delta parameters" and "MFCC acceleration parameters" and in the next sentence, lines 10-11 state that "[t]hese parameters can be determined automatically …" At first glance, it may appear that the parameters being referred to in the second sentence are the same as the parameters being referred to in the first sentence, however this is not the case. The parameters referred to on line 10 are configuration parameters, that is: "the computation resources available, the transmission bandwidth in data link 160A available to server side system 180, the speed of a transceiver used for carrying data in the data link, etc."

18. The '864 Application also discusses that in a preferred embodiment, performance goals dictate that "sufficient resources are made available in a client side system" [page 35, lines 22-23]. This statement is followed by a discussion that the invention can be applied to other ways to partition processing:… "[t]he only criteria is that the SR processing be similarly dividable into multiple phases and with the responsibility for different phases being handled on opposite sides of link 160A depending on overall system performance goals." [page 35

line 31 – page 36, line 3] This discussion makes it clear that one basis for partitioning or allocating processing between client and server is based on identifying the computing resources available to the client and the server.

19. It would be clear to one of skill in the art that an evaluation of both client capabilities and server capabilities is an option described in the specification. In particular, the specification refers to a comparative analysis of performance capabilities. In a preferred embodiment, certain processing takes place at the server "where it is determined that it will take less time .... than it would take to encode them at the client ..." [page 42, lines 5-9] Thus, it would be required to evaluate computing resources available at both the client and the server in order to make this determination.

20. For the reasons stated above, I believe that the claim limitations of:

> i. "evaluating an amount of computing resources available at the network server system for performing speech recognition operations on speech related data" and
> ii. "evaluating an amount of computing resources available at a client device for performing query recognition operations on speech utterance data received from a user"

are clearly supported by the '864 Application. These claim limitations do not contain subject matter which is not described in the '864 Application.

Configuration on a connection by connection basis

21. The third claim limitation that is the subject of the Office Action relates to configuration on a connection-by-connection basis:

> "wherein said first set of speech recognition operations are specified during an initialization period and are configurable on a connection-by-connection basis with each client"

This relates to when the partitioning of processing operations between client and server takes place. The '864 Application is clear that one option for configuring the partitioning of processing is on a connection by connection basis.[2]

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[2] While not completely overlapping, this language could be reasonably understood to include situations where it is done on a client by client basis, or on a case by case basis (such as with each utterance for example) depending on available resources. In FIG. 2B, for example, it is apparent that the "iterative process" denotes that the allocation could be done on an utterance basis if desired.

22. In order to understand the context for when partitioning may take place, it is important to read the passages cited above, which explicitly discuss the configuration of partitioning, as well as the '864 Application as a whole which serves to put these passages in context. In particular, the understanding that one skilled in the art would have of the disclosed system in general is necessary to understand what these passages teach.

23. The '864 Application states that measurement of resources can take place "upon initializing SRE 155 … using some sort of calibration routine" and further states that "partitioning … can be optimized on a case-by-case basis." [page 35, lines 11-14] In order to understand the options for when this calibration routine may take place, it is necessary to investigate when and how SRE 155 is initialized.

24. The operation of a preferred embodiment makes clear that the SRE initialization is done on a connection by connection basis. See for example page 31 line 20 to page 33, line 29. The initialization of the speech recognition engine is followed by the initialization of the communications link, which involves opening an Internet connection with the server. Furthermore, the step of un-initialization in a preferred embodiment involves closing the Internet connection. See for example page 37, line 20 to page 38, line 13. The preferred embodiment also shows that resources and routines on both the client side and server side are also allocated (at the beginning) and de-allocated (at the end) for each interactive session. See e.g., FIGs. 2D and 4.

25. In other words, the preferred embodiment teaches quite clearly that in a distributed architecture, many differing type of clients can be expected to connect to a server for speech recognition resources. To maximize flexibility, the decision of which speech related functions will take place (and where) is preferably done when such client makes a "connection" to the server. See e.g., FIGs. 2B, 2C, 2D, 3, 4, 4A and related discussions in the specification.

26. Thus, it would be clear to one of skill in the art that the determination of computing resources can be done at the beginning of each connection. While this is not the only disclosed embodiment, this possibility is clear, since each connection may encounter different capabilities at either the client side or the server side or both.

27. For the reasons stated above, I believe that the claim limitation of:

> "wherein said first set of speech recognition operations are specified during an initialization period and are configurable on a connection-by-connection basis with each client"

is clearly supported by the '864 Application. This claim limitation does not contain subject matter which is not described in the '864 Application.

I declare under penalty of perjury that the foregoing is true and accurate to the best of my knowledge, information and belief.

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